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Acupuncture-Needle-Induced Compartment Syndrome

TO THE EDITOR: Acupuncture has gained limited western acceptance as an alternative to more traditional treatment regimens for various medical and surgical conditions. With wider application, reports of various complications have emerged. These include bacterial endocarditis,[1] osteomyelitis,[2] pneumothorax,[3] hepatitis,[4] spinal cord injury[5,6] and infection.[7,8]

Compartment syndromes involving the lower extremities are relatively uncommon but potentially serious conditions that frequently require surgical decompression for limb salvage. Reported causes of anterior compartment syndromes include those due to trauma[9] or localized external pressure,[10] and those resulting from a bleeding disorder,[11] anticoagulant use[9] or vascular injury[12] producing intracompartmental hemorrhage. Vigorous muscular exercise,[13] nephrotic syndrome[14] and iatrogenic conditions[15] are also associated with compartment syndrome. We report here a previously unrecognized risk of acupuncture: the development of the anterior compartment syndrome after local insertion and manipulation of an acupuncture needle.

Report of a Case

A 68-year-old man with a prosthetic Starr-Edwards aortic valve maintained on a regimen of sodium warfarin (Coumadin) with a therapeutic prothrombin time presented to the hospital with a five-day history of gradually increasing pain, notable swelling and discoloration involving the anterolateral aspect of the right lower extremity, from foot to knee. In the distant past, the patient had a lumbar laminectomy and six weeks before admission began to complain of recurrence of sciatica. Despite an adequate trial of bed rest and analgesics, his pain had become refractory. Five days before admission, a physician trained in acupuncture inserted acupuncture needles in the hands, lips and lateral aspect of the right leg 5 cm below the knee. Almost immediately after placement of the needles, the patient noted local right lower leg pain which progressively became more severe. Over the next four days, pronounced swelling and discoloration of the lower portion of the right leg appeared and increased, precipitating the hospital admission.

On examination, the patient was noted to be afrebrile with considerable right anterolateral lower extremity swelling extending from the acupuncture site to the dorsum of foot. Lateral calf ecchymosis and calf tenderness were present. Although toe extension produced severe anterior calf pain, foot sensation, capillary filling and pulses were intact. Routine laboratory investigations showed a normal leukocyte count, hemoglobin and therapeutic prothrombin time at 1.7 times the control value.

Using standard needle insertion and electronic transducer techniques, the resting right anterior compartment pressure was found to be three times the accepted upper limits of normal. The day after admission, an anterolateral compartmental surgical decompression fasciotomy was carried out. At the time of operation an area of proximal anterior compartment intramuscular hemorrhage associated with areas of necrotic muscle tissue was found. Cultures of compartmental material obtained intraoperatively were sterile. The patient's postoperative course was uneventful except for presumed mild foot cellulitis which responded well to empiric antibiotic coverage three days after operation. At six weeks' follow-up the patient had a full recovery without functional or vascular compromise.

Comments

Previous investigations have suggested that acupuncture has therapeutic analgesic value for a wide variety of chronic pain syndromes, including low back pain.[16,17] Acupuncture's precise utility, limitations and complication rate, however, remain unclear. Furthermore, relative contraindications for using acupuncture manipulation are not widely known. In the present case, the patient was maintained on anticoagulation therapy for prevention of prosthetic valve thrombosis. He solicited acupuncture administration, unaware of the potential complication of a hemorrhage induced by acupuncture needle insertion.

Although uncommon, needle insertion for any reason in patients receiving anticoagulation therapy can lead to soft tissue hemorrhage. Intracompartmental hemorrhage, a previously unrecognized complication of acupuncture needle manipulation, must be considered a risk to be weighed against the potential benefits when an acupuncturist embarks on this type of therapy.

DAVID L. SMITH, MD
Assistant Professor of Medicine
The Oregon Health Sciences University
Ambulatory Care & Medical Services (11C-OPC)
Veterans Administration Medical Center
PO Box 1034
Portland, OR 97207

MICHAEL H. WALCZYK, MD
Nephrology Fellow
Division of Medicine
Department of Medicine
The Oregon Health Sciences University
Veterans Administration Medical Center
Portland, OR 97207

STEPHEN CAMPBELL, MD
Chief, Allergy and Rheumatology
Veterans Administration Medical Center
Assistant Professor of Medicine
The Oregon Health Sciences University
Portland, OR 97201

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Medical Practice Question

EDITOR'S NOTE: *From time to time medical practice questions from organizations with a legitimate interest in the information are referred to the Scientific Board by the Quality Care Review Commission of the California Medical Association. The opinions offered are based on training, experience and literature reviewed by specialists. These opinions are, however, informational only and should not be interpreted as directives, instructions or policy statements.*

Anticholinergic Drugs for Nicotine Addiction and Withdrawal

QUESTION:

Is it accepted medical practice to treat nicotine addiction and withdrawal with the use of anticholinergic drugs?

OPINION:

In the opinion of the Scientific Advisory Panels on General and Family Practice, Internal Medicine and Psychiatry, the use of anticholinergic drugs, such as scopolamine and atropine, to treat nicotine addiction and withdrawal is considered investigational. There is the theoretical possibility that, after acute physical withdrawal from tobacco is complete, the use of antagonists to nicotine might decrease craving for nicotine, but this hypothesis remains to be proved. The advisory panels are unaware of published studies supporting the use of anticholinergic drugs to treat nicotine withdrawal and questions regarding the safety, efficacy, side effects and complications of this method remain to be studied. There are reports in the literature that mecamylamine, another anticholinergic drug, has been shown to be effective in blocking the effects of nicotine withdrawal in experimental studies. However, in the absence of double-blind, randomized placebo-controlled clinical trials and given the possible toxicity of the pharmacological agents involved, the use of anticholinergic drugs to treat nicotine addiction and withdrawal cannot be considered accepted medical practice.